

Notice of Allowability

Application No.

09/950,022

Examiner

Juliet C. Switzer

Applicant(s)

ROTHSCHILD ET AL.

Art Unit

1634

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to amendment filed 11/24/04 and interview 1/26/05.
2. ☒ The allowed claim(s) is/are 61-70,81-92 and 94.
3. ☒ The drawings filed on 10 September 2001 are accepted by the Examiner.
4. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) ☐ All b) ☐ Some* c) ☐ None of the:
 1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).
 - * Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.
THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

5. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
6. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
 - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
 - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
 - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.

Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
7. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☐ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
3. ☒ Information Disclosure Statements (PTO-1449 or PTO/SB/08),
Paper No./Mail Date 6/03
4. ☐ Examiner's Comment Regarding Requirement for Deposit
of Biological Material
5. ☐ Notice of Informal Patent Application (PTO-152)
6. ☒ Interview Summary (PTO-413),
Paper No./Mail Date 0105
7. ☒ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other _____

Art Unit: 1634

EXAMINER'S AMENDMENT

1. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with Heidi Nebel on 1/26/05.

The application has been amended as follows:

Claim 61 has been replaced with the following claim:

61. A method for identifying a pig with an increased likelihood of having a phenotype which includes higher ham and loin pH and lower ham and loin Minolta, wherein a pig with a cytosine at position 89 of SEQ ID NO: 3 is indicative of said pig being more likely to have the phenotype than a pig with an adenosine at position 89 of SEQ ID NO: 3, said method comprising: detecting the nucleotide present at position 89 of SEQ ID NO: 3, and relating the nucleotide to the phenotype.

Claim 62 was amended to delete the dependency from claim 1 and insert dependency from claim 61. The claim now reads, ---The method of claim 61---.

In **claim 62**, line 1, the word "polymorphism" was deleted and the word ---nucleotide--- was inserted therefor.

Art Unit: 1634

Claim 63 was amended to delete the dependency from claim 1 and insert dependency from claim 61. The claim now reads, ---The method of claim 61---

In **claim 63**, line 1, the word “polymorphism” was deleted and the word ---nucleotide--- was inserted therefor.

Claim 64 was amended to delete the dependency from claim 2 and insert dependency from claim 62. The claim now reads, ---The method of claim 62---

Claim 65 was amended to delete the dependency from claim 1 and insert dependency from claim 61. The claim now reads, ---The method of claim 61---

In **claim 65**, line 1, the word “polymorphism” was deleted and the word ---nucleotide--- was inserted therefor.

Claim 66 was amended to delete the dependency from claim 5 and insert dependency from claim 65. The claim now reads, ---The method of claim 65---

In **claim 66**, line 2, the word “polymorphism” was deleted and the word ---nucleotide--- was inserted therefor.

Claim 67 was amended to delete the dependency from claim 6 and insert dependency from claim 66. The claim now reads, ---The method of claim 66---

Claim 68 has been replaced with the following claim.

Art Unit: 1634

68. The method of claim 67, wherein restriction fragments of 198 and 72 base pairs indicate the presence of an adenosine nucleotide at position 89 of SEQ ID NO: 3.

Claim 69 has been replaced with the following claim.

69. The method of claim 67, wherein restriction fragments of 198, 181, 72, and 17 base pairs indicate the presence of the both an adenosine nucleotide and a cytosine nucleotide at position 89 of SEQ ID NO: 3.

Claim 70 has been replaced with the following claim.

70. The method of claim 67, wherein restriction fragments of 181, 72, and 17 base pairs indicate the presence of a cytosine nucleotide at position 89 of SEQ ID NO: 3.

Claims 71-80 have been CANCELLED.

Claim 81 has been replaced with the following claim.

81. A method for identifying a pig with an increased likelihood of having a phenotype which includes higher ham and loin pH and lower ham and loin Minolta, wherein a pig with an adenosine at position 595 of SEQ ID NO: 3 is indicative of said pig being more likely to have the phenotype than a pig with guanine at position 595 of SEQ ID NO: 3, said method comprising: detecting the nucleotide present at position 595 of SEQ ID NO: 3, and relating the nucleotide to the phenotype.

Art Unit: 1634

Claim 82 was amended to delete the dependency from claim 21 and insert dependency from claim 81. The claim now reads, ---The method of claim 81---

In **claim 82**, line 1, the word “polymorphism” was deleted and the word ---nucleotide--- was inserted therefor.

Claim 83 was amended to delete the dependency from claim 21 and insert dependency from claim 81. The claim now reads, ---The method of claim 81---

In **claim 83**, line 1, the word “polymorphism” was deleted and the word ---nucleotide--- was inserted therefor.

Claim 84 was amended to delete the dependency from claim 22 and insert dependency from claim 82. The claim now reads, ---The method of claim 82---

Claim 85 was amended to delete the dependency from claim 1 and insert dependency from claim 81. The claim now reads, ---The method of claim 81---

In **claim 85**, line 1, the word “polymorphism” was deleted and the word ---nucleotide--- was inserted therefor.

Claim 86 was amended to delete the dependency from claim 25 and insert dependency from claim 85. The claim now reads, ---The method of claim 85---

In **claim 86**, line 2, the word “polymorphism” was deleted and the word ---nucleotide--- was inserted therefor.

Claim 87 was amended to delete the dependency from claim 26 and insert dependency from claim 86. The claim now reads, ---The method of claim 86---

Claim 88 has been replaced with the following claim.

88. The method of claim 87, wherein restriction fragments of 167 and 91 base pairs indicate the presence of an adenosine nucleotide at position 595 of SEQ ID NO: 3.

Claim 89 has been replaced with the following claim.

89. The method of claim 87, wherein restriction fragments of 167, 119, and 91 base pairs indicate the presence of the both an adenosine nucleotide and a guanine nucleotide at position 595 of SEQ ID NO: 3.

Claim 90 has been replaced with the following claim.

90. The method of claim 87, wherein restriction fragments of 119 and 91 base pairs indicate the presence of a guanine nucleotide at position 595 of SEQ ID NO: 3.

Claim 91 has been replaced with the following claim.

91. A method for identifying a pig with an increased likelihood of having a phenotype which includes higher ham and loin pH and lower ham and loin Minolta, wherein a pig with an adenosine at position 595 and codon encoding ARG at positions 598-600 of SEQ ID NO: 3 is

Art Unit: 1634

indicative of said pig being more likely to have the phenotype than a pig a pig not having this combination of nucleotides present at the recited positions, said method comprising:
detecting the nucleotide present at position 595 of SEQ ID NO: 3,
detecting the codon present at nucleotides 598-600 of SEQ ID NO: 3, and
relating the nucleotides to the phenotype.

Claim 92 has been replaced with the following claim.

92. A method for identifying a pig with an increased likelihood of having a phenotype which includes higher ham and loin pH and lower ham and loin Minolta, wherein a pig with an cytosine at position 89, guanine at position 154, adenosine at position 595 and codon encoding ARG at positions 598-600, wherein all of the nucleotide positions are from SEQ ID NO: 3, is indicative of said pig being more likely to have the phenotype than a pig not having this combination of nucleotides present at the recited positions, said method comprising:
detecting the nucleotide present at position 89 of SEQ ID NO: 3,
detecting the nucleotide present at position 154 of SEQ ID NO: 3,
detecting the nucleotide present at position 595 of SEQ ID NO: 3,
detecting the codon present at nucleotides 598-600 of SEQ ID NO: 3, and
relating the nucleotides to the phenotype.

Claim 93 has been CANCELLED.

Art Unit: 1634

Claim 94 has been replaced with the following claim.

94. A method for identifying a pig with an increased likelihood of having a phenotype which includes higher ham and loin pH and lower ham and loin Minolta, wherein a pig with an cytosine at position 89, guanine at position 154, and adenosine at position 595, wherein all of the nucleotide positions are from SEQ ID NO: 3, is indicative of said pig being more likely to have the phenotype than a pig not having this combination of nucleotides present at the recited positions, said method comprising:

detecting the nucleotide present at position 89 of SEQ ID NO: 3,

detecting the nucleotide present at position 154 of SEQ ID NO: 3,

detecting the nucleotide present at position 595 of SEQ ID NO: 3, and

relating the nucleotides to the phenotype.

Restriction

2. The restriction among original groups II, III, and IV is hereby WITHDRAWN. These claims are all drawn to methods of screening animals from meat quality traits via the use of polymorphisms within the PRKAG3 gene. Upon further consideration it was determined that though the groups were independent and distinct it was not a significant burden to consider these groups together.

REASONS FOR ALLOWANCE

3. The following is an examiner's statement of reasons for allowance: The scope of the claims has been amended to make the claims commensurate in scope with the specification. The

Art Unit: 1634

claims are free of the prior art. The closest prior art, Milan et al. is of record. Milan et al. teach five different PRKAG3 alleles (haplotypes) identified in pigs, but teach that only the R200Q substitution was exclusively associated with the negative phenotype. Milan et al. teach that codons 30 and 199 of the encoded polypeptide are polymorphic (due to nucleotides at positions 89 and 595 of the encoding gene), but they do not teach that these polymorphisms are sufficiently powerful to use as indicators of the specific meat quality traits recited in the instant claims. For example, with regard to the cytosine allele at position 89, this allele is Milan et al. teach that this allele is present in both phenotypes, and do not suggest any value of this position in predicting meat quality traits. Likewise, the polymorphism at position 595, pigs with the positive phenotype have both possible alleles and there does not appear, from the teachings of Milan et al. to be any predictive relationship. This application provides that relationship to support the instantly claimed invention. Therefore, the claims are free of the closest prior art.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Art Unit: 1634

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Juliet C Switzer whose telephone number is (571) 272-0753. The examiner can normally be reached on Monday through Friday, from 9:00 AM until 4:00 PM.


If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, W. Gary Jones can be reached by calling (571) 272-0745.

The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9306. Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (571)272-0507.

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Art Unit: 1634

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Art Unit 1634

January 27, 2005